

WHAT IS CLAIMED IS:

1. A method for manufacturing a probe card, which comprises a plurality of probe pins electrically connected with a connection terminal provided on a circuit under test for transferring a signal between said circuit under test and a testing apparatus for testing said circuit under test, comprising the steps of:

preparing a probe pin forming substrate for forming said plurality of probe pins;

forming an amorphous alloy layer of a predetermined shape on a plurality of areas of said probe pin forming substrate, wherein said amorphous alloy layer has a supercooled liquid temperature area;

heating said amorphous alloy layer at said supercooled liquid temperature area;

cooling said amorphous alloy layer at a temperature lower than said supercooled liquid temperature area;

preparing a holding substrate comprising a transfer line for transferring a signal in order to hold said amorphous alloy layer;

joining a part of said amorphous alloy layer and said transfer line; and

removing at least a part of said probe pin forming substrate in a state where said amorphous alloy layer is cooled at a temperature lower than said supercooled liquid temperature area.

2. A method for manufacturing a probe card as claimed in claim 1, wherein said step of preparing said probe pin forming substrate comprises a step of forming a probe pin forming groove

part having a bottom surface provided to be substantially parallel to a surface of said probe pin forming substrate and an inclined surface having a first end provided to extend from said bottom surface to have an angle to said bottom surface and a second end provided to extend from said surface of said probe pin forming substrate, and

 said amorphous alloy layer is deposited from said bottom surface over said inclined surface and said surface of said probe pin forming substrate during said step of forming said amorphous alloy layer.

3. A method for manufacturing a probe card as claimed in claim 2, wherein said probe pin forming groove part is formed on said probe pin forming substrate by treating said probe pin forming substrate with anisotropic etching during said step of forming said probe pin forming groove part.

4. A method for manufacturing a probe card as claimed in claim 2, wherein said step of preparing said probe pin forming substrate further comprises a step of forming a protrusion forming groove part used for forming a protrusion part at an area where said amorphous alloy layer is formed on said bottom surface, and

 said amorphous alloy layer is formed at said protrusion forming groove part during said step of forming said amorphous alloy layer.

5. A method for manufacturing a probe card as claimed in claim 1 or 2, further comprising a step of forming a conductive layer on a surface of said amorphous alloy layer.

6. A method for manufacturing a probe card as claimed in claim 1 or 2, wherein a part of said amorphous alloy layer and said transfer line are joined in a state where said supercooled liquid temperature area is heated during said step of joining.

7. A method for manufacturing a probe card as claimed in claim 1 or 2, further comprising a step of forming a joining member for joining said amorphous alloy layer and said transfer line at said amorphous alloy layer or said transfer line, wherein said amorphous alloy layer and said transfer line are joined via said joining member during said step of joining.

8. A method for manufacturing a probe card as claimed in any one of claims 1 to 8, further comprising a step of dividing said probe pin forming substrate for each of said probe pins, wherein said amorphous alloy provided on said probe pin forming substrate divided and said transfer line are joined during said step of joining.

9. A method for manufacturing a probe pin electrically connected with a connection terminal provided on a circuit under test for transferring signals to said circuit under test, said method comprising the steps of:

forming an amorphous alloy layer of a predetermined shape on a probe pin forming substrate for forming said probe pin, wherein said amorphous alloy layer has a supercooled liquid temperature area;

heating said amorphous alloy layer at said supercooled liquid temperature area;

cooling said amorphous alloy layer; and
removing at least a part of said probe pin forming substrate

in a state where said amorphous alloy layer is cooled at a temperature lower than said supercooled liquid temperature area.